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JEN, MINGJEN				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/822,133

Applicant(s)

PERLIN ET AL.

Examiner

IAN JEN

Art Unit

3664

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 January 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15, 18-22, 29-35, 40 and 41 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15, 18-22, 29-35, 40 and 41 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 April 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. This action is response to the communication filed on January 13th, 2009
2. Claims 1 – 15, 18-22 and 29-35 are pending in current action.
3. Claims 40, 41 have been newly added.

Drawings

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, N objects unaware of their respective position and orientation, communicating movement commands to the objects to control objects' movement must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an

application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 1, 10, 12 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

As for claims 1, 10, 12, the phrase, N objects unaware of their respective position and orientation, were not disclosed in the specification as in a fully and concise described manner with providing the unawareness for objects with respect to its position and orientation. Appropriate correction is required.

As for claim 1, the phrase, communicating movement commands to the objects to control objects' movement, were not disclosed in the specification as in a fully and concise described

manner with providing movement commands to the objects in communication with object's movement control. Appropriate correction is required.

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 1, 10, 12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As for claims 1, 10, 12, the phrase, N objects unaware of their respective position and orientation, were not particularly and distinctly clarify for the claim subject matter as unaware of respective position and orientation for N objects in the subject matter.

As for claims 1, the phrase, communicating movement commands to the objects to control objects' movement, were not particularly and distinctly clarify for the claim subject matter as communicating using movement commands to the objects to control objects' movement in the subject matter.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1 – 12, 14, 18-20, 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hara et al (US Pat No 7082351) in view of Faghri (US Pat No 6950788).

As for Claim 1, Hara et al shows a system for manipulation of objects comprising: N physical objects, where N is greater than or equal to 2 and is an integer; and means for 2D locating and controlling of the N objects(Fig 1, Col 1, lines 59 - Col 2, lines 40; Col 3, lines 42 – 48); locating of N objects based on each object's current location and orientation (Col 38, lines 5 -60; Col 59, lines 20-30; Col 2, lines 12 – 52). Hara et al is silent regarding each of the N objects unaware of their respective position and orientation and not in communication with each other.

Faghri shows each of the N objects unaware of their respective position and orientation and not in communication with each other (Abstract, Fig 1, Fig 3, Fig 11, Fig 2, Computer device 10, Processor 14, Main memory 18; Col 4, lines 45 – Col 7, lines 65).

It would have been obvious for one of ordinary skill in the art, to provide a model of objects unaware of position and not communicated with each other, as taught by Faghri et al, to Hara et al, in order to provide a centralized simulation control system.

Further, Applicant's admission on prior art, shown in the section of background of invention, paragraph 0007-0016, states manipulation of physical objects, with central station, which physical objects unaware of their respective position and orientation and not in communication with each other, has been researched and developed. Supplemental Material, applicant cited but not submitted has been provided by one of ordinary skill in the art.

As for Claim 2 – 9, Hara et al shows the controlling means includes position indicators disposed on the object (Col 38, lines 5-60); the controlling means includes sensing means for locating the objects (Col 3, lines 42 – 53); position indicators include emitters which indicate a position of an object (Col 38, lines 5 -60; Col 59, lines 20-30); the objects are vehicles (Col 42, lines 61 - Col 43, lines 5 where wheeled robot apparatus moving on the two dimensional plane); the controlling means includes a vehicle controller disposed with each vehicle (Fig 19, Col 25, lines 61 - Col 26, lines 46); the vehicle controller of each vehicle includes an MCU (Col 38, lines 42 - Col 39, lines 2); the sensing means includes sensors (Col 14, lines 49-56); the emitters include LEDs (Col 46, lines 17-25).

As for Claim 10, Hara et al shows a method for manipulating objects comprising the steps of: receiving information from N physical objects, where N is greater than or equal to 2 and is an integer, at a centrally controlling and 2D locating controller(Fig 1, Col 1, lines 59 - Col 2, lines 40; Col 3, lines 42 - 48); determining 2D locations by the controller of the N objects object (Col 38, lines 5 -60; Col 59, lines 20-30); and transmitting from the controller directions to the N objects for the N objects to move (Col 2, lines 12 – 52). Hara et al is silent regarding each of

the N objects unaware of their respective position and orientation and not in communication with each other.

Faghri shows each of the N objects unaware of their respective position and orientation and not in communication with each other (Abstract, Fig 1, Fig 3, Fig 11, Fig 2, Computer device 10, Processor 14, Main memory 18; Col 4, lines 45 – Col 7, lines 65).

It would have been obvious for one of ordinary skill in the art, to provide a model of objects unaware of position and not communicated with each other, as taught by Faghri, to Hara et al, in order to provide a centralized simulation control system.

As for Claim 11, Hara et al shows the transmitting step includes the step of transmitting from the controller kinematic parameters to the N objects (Col 59, lines 16 - 32; Col 55, lines 15 -65).

As for Claim 12, Hara et al shows an apparatus for tracking comprising: N physical objects, where N is greater than or equal to 2 and is an integer (Fig 1, Col 1, lines 59 - Col 2, lines 40; Col 3, lines 42 – 48), each object having an emitter which emits light; and means for 2D sensing of the N objects over time from the light emitted by each emitter (Col 46, lines 17-25). Hara et al is silent regarding each of the N objects unaware of their respective position and orientation and not in communication with each other.

Faghri shows each of the N objects unaware of their respective position and orientation and not in communication with each other (Abstract, Fig 1, Fig 3, Fig 11, Fig 2, Computer device 10, Processor 14, Main memory 18; Col 4, lines 45 – Col 7, lines 65).

It would have been obvious for one of ordinary skill in the art, to provide a model of objects unaware of position and not communicated with each other, as taught by Faghri, to Hara et al, in order to provide a centralized simulation control system.

As for Claim 14, Hara et al shows a method for tracking comprising the steps of: emitting light from N physical objects, where N is greater than or equal to 2 and is an integer; and sensing 2D locations of the N objects over time from the emitted light from the N objects (Fig 1, Col 1, lines 59 - Col 2, lines 40; Col 3, lines 42 - 48; Col 46, lines 17-25). Hara et al is silent regarding each of the N objects unaware of their respective position and orientation and not in communication with each other.

Faghri shows each of the N objects unaware of their respective position and orientation and not in communication with each other (Abstract, Fig 1, Fig 3, Fig 11, Fig 2, Computer device 10, Processor 14, Main memory 18; Col 4, lines 45 – Col 7, lines 65).

It would have been obvious for one of ordinary skill in the art, to provide a model of objects unaware of position and not communicated with each other, as taught by Faghri, to Hara et al, in order to provide a centralized control system.

As for claim 18, Hara shows an apparatus for tracking comprising: N physical objects, where N is greater than or equal to 2 and is an integer (Fig 1, Col 1, lines 59 - Col 2, lines 40; Col 3, lines 42 - 48), each object having an emitter which emits light (Col 41, lines 30- 50, LED 8); and a sensor for 2D sensing of the N objects over time from the light emitted by each emitter (Fig 1, Col 1, lines 59 - Col 2, lines 40; Col 3, lines 42 - 48). Hara et al is silent

regarding each of the N objects unaware of their respective position and orientation and not in communication with each other.

Faghri shows each of the N objects unaware of their respective position and orientation and not in communication with each other (Abstract, Fig 1, Fig 3, Fig 11, Fig 2, Computer device 10, Processor 14, Main memory 18; Col 4, lines 45 – Col 7, lines 65).

It would have been obvious for one of ordinary skill in the art, to provide a model of objects unaware of position and not communicated with each other, as taught by Faghri, to Hara et al, in order to provide a centralized control system.

As for claim 19, 30, 32, 34, 35, Hara et al shows the objects are vehicles (Col 42, lines 61 - Col 43, lines 5 where wheeled robot apparatus moving on the two dimensional plane).

As for claim 20,29, 31,33, Hara et al shows the objects are on vehicles (Col 42, lines 61 - Col 43, lines 5 where the objects are embedded on to wheeled robot apparatus moving on the two dimensional plane).

10. Claim 13, 15, 22, 30-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hara et al (US Pat No 7082351) in view of Faghri (US Pat No 6950788) and further in view of Storlie et al (US Pat No 5252991).

As for Claim 13, Hara et al shows N objects (Col 42, lines 61 - Col 43, lines 5), element on which the N objects are disposed (Col 42, lines 61 - Col 43, lines 5; Col 42, lines 61 - Col 43, lines 5 where wheeled robot apparatus moving on the two dimensional plane), Hara et al is silent

regarding the sensing means includes at least 2 1-D sensors that sense the light emitted from the edge of the planar element on which the objects are disposed.

Storlie et al shows the sensing means includes at least 2 1D sensor that sense the light emitted from the edge of the planar element on which the objects are disposed (Abstract, Fig 2, direct beams 36,38; Fig 3, optical sensor 40,42; Col 2, lines 55 - Col 3, lines 65).

It would have been obvious for one of ordinary skill in the art, to provide sensing means, as taught by Storlie et al, to Hara et al, in order to detect the motion of objects for the central control unit.

As for Claim 15, Hara et al shows sensing 2D locations of the N objects over time from the emitted light from the N objects (Col 42, lines 61 - Col 43, lines 5 where wheeled robot apparatus moving on the two dimensional plane; Col 38, lines 5-60; Col 46, lines 17-25; Fig 1, Col 1, lines 59 - Col 2, lines 40; Col 3, lines 42 - 48; Col 46, lines 17-25). Hara et al is silent regarding sensing through an edge of a planar element on which N objects are disposed.

Storlie et al shows sensing through an edge of a planar element on which N objects are disposed. (Abstract, Fig 2, direct beams 36,38; Fig 3, optical sensor 40,42; Col 2, lines 55 - Col 3, lines 65).

It would have been obvious for one of ordinary skill in the art, to provide sensing means, as taught by Storlie et al, to Hara et al, in order to detect the motion of objects for the central.

As for claim 22, Hara et al shows the objects are on a surface (Col 42, lines 61 - Col 43, lines 5 where wheeled robot apparatus moving on the two dimensional plane; Col 38, lines 5-60;

Col 46, lines 17-25). Hara et al is silent regarding the sensor senses light at the edge of the surface.

Storlie et al shows show the sensor senses light at the edge of the surface (Abstract, Fig 2, direct beams 36, 38; Fig 3, optical sensor 40, 42; Col 2, lines 55 - Col 3, lines 65).

It would have been obvious for one of ordinary skill in the art, to provide sensing means, as taught by Storlie et al, to Hara et al, in order to detect the motion of objects for the central control unit.

11. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hara et al (US Pat No 7082351) in view of Faghri (US Pat No 6950788) and further in view of Kanayama et al (US Pat No 5719762).

As for claim 21, Hara et al is silent regarding vehicles capable of holomonic motion. Kanayama shows vehicles capable of holomonic motion (Fig 2; Col 2, lines 15 - 30).

It is obvious for one of ordinary skill in the art, to provide holomonic motion, as taught by Kanayama, to Hara et al, in order to provide a collision impact minimize means for group objects.

12. Claims 40.41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hara et al (US Pat No 7082351) in view of Faghri (US Pat No 6950788) and Combs (US Pat No 6718504) and further in view of Interleaving Documentation, Non Patent Literature.

As for claim 40, 41, Hara et al shows the communication between the controlling means and the objects (Fig 1, Col 1, lines 59 - Col 2, lines 40; Col 3, lines 42 – 48). However, Hara et al is silent regarding the communication are interleaved within a system updated cycle.

Combs shows the communication are interleaved within a system updated cycle (Interleaver 109, Deinterleaver 208; Interleaver 210,216; Col 2,lines 63 - Col 3, lines 20,"As known in the art, the deinterleaver and the interleavers use the same interleaving function....").

Interleaving Documentation further states in page 1, "Interleaving was very common prior to 1990s".

It would have been obvious for one of ordinary skill in the art, to provide the multiple channel transmission input device, interleaver, to the N physical object control device, in order to provide efficiency communication and error prevention in multiple channels for communication purpose.

Response to Arguments

13. In response to applicant's remark that states, Hara does not teach the limitation of each of the N vehicles unaware of their respective position and orientation and not in communication with each other and Faghri is silent regarding the manipulation or control of physical objects. Applicant's attention is directed to Faghri, where shows each of the N vehicles unaware of their respective position and orientation and not in communication with each other, Fig 1, Fig 3, Fig 11, Fig 2, Computer device 10, Processor 14, Main memory 18; Col 4, lines 45 – Col 7, lines 65. Applicant's attention is further directed to Hara, where shows the manipulation or control of physical objects, Fig 1, Col 1, lines 59 - Col 2, lines 40; Col 3, lines 42 – 48. Further, in repose

to applicant' remark that Faghri is silent regarding to control an object, such as an actual motor or wheels or any type of mechanism that moves a physical object and Hara does not provide motion command to the robots. Applicant's attention is directed to Hara, where Hara et al shows an physical object such as an actual motor or wheel or any type of mechanism that moves a physical object and Applicant's attention is further directed to Faghri, where Faghri shows providing motion commands. Applicant's attention is directed to MPEP 2145 VI, ARGUING AGAINST REFERENCES INDIVIDUALLY, where states "One cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co., Inc.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).". In this instant case, Applicant argues Hara does not teach the limitation of each of the N vehicles unaware of their respective position and orientation and not in communication with each other, which is shown by Faghri and argues Faghri is silent regarding the manipulation or control of physical objects, which is shown by Hara.

14. In response to applicant's argument that the rejection of claim 1 are improper because the one of ordinary skill in the art's analysis of the Graham factual inquiries is flawed. Applicant's attention is directed to MPEP § 2143 Basic Requirements of a Prima Facie of Obviousness where MPEP § 2143.01 states the prior art must suggest the desirability of the claimed invention. Applicant's attention is further directed MPEP § 904.02(a) where indicates the proper classification search guideline for the prior art reference where the primary reference Hara et al (US Pat No. 7082351) classified in class 700/245, directed to robot control, which is exactly the

same with applicant's application Rosenfeld et al, cross reference with class 701, classified Data Processing: Vehicles, Navigation and Relative Location, which cross referenced with secondary reference, Faghri, (US Pat No 6950788), which classified 701/300, directed to relative location. Applicant's attention is further directed to MPEP § 2143.02 states reasonable expectation of success is required; obviousness requires only a reasonable expectation of success. Applicant's attention is further directed to Hara et al and Faghri, where Hara et al provides a known device and method, N physical objects, where N is greater than or equal to 2 and is an integer; and means for 2D locating and controlling of the N objects; Faghri provides an alternative utilization or improvement method thereof, each of the N objects unaware of their respective position and orientation and not in communication with each other; where it is obvious for one of ordinary skill in the art to provide a known technique/method, that provided by Faghri, to a known device/system of Hara et al ready for modification to yield predictable results. Applicant's attention is further directed MPEP § 2143.03 states where all the claim limitation need to be addressed. Applicant's attention is further direct to claim rejection of claim 1 where all the claim limitation has been addressed. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

8. In response to applicant's argument that the reference is not physically combinable, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

9. In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Sensetable: A wireless Object Tracking Platform for Tangible User Interface, James Patten, Hiroshi Ishii, Jim Hines and Gian Pangaro, Tangible Media Group, MIT Media Lab; System Dynamic Group

- Interacting with paper on the Digital Desk, Pierre David Wellner, University of Cambridge, Computer Laboratory.
- Bricks: Laying the Foundations for Graspable User Interfaces, George W.Fitzmaurece,Hiroshi Ishii, William Buxton
- Tangible Bits: Toward Seamless Interfaces between People, Bits and Atoms
- The Actuated Workbench: Computer Controlled Actuation in Tabletop tangible Interfaces.
- The universal planar manipulator
- Universal Part Manipulation in the plane with a single horizontally vibrating plate

10. THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action. Any inquiry concerning this communication or earlier communications from the examiner should be directed to IAN JEN whose telephone number is (571)270-3274. The examiner can normally be reached on Monday - Friday 9:00-6:00 (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Khoi Tran can be reached on 571-272-6919. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ian Jen/
Examiner, Art Unit 3664
/Khoi H Tran/
Supervisory Patent Examiner, Art Unit 3664